ICTP RESEARCH ON DIGITAL LECTURES: ***YOUR TALKS DELIVERED TO A MILLION SCIENTISTS***

ICTP, 15 March 2007

E. Canessa, M. Zennaro and C. Fonda
ICTP Science Dissemination Unit
sdu@ictp.it

ICTP SDU

The Science Dissemination Unit has been created in late 2004 with the broad aim of **disseminating ICTP scientific contents and programs to more people than are able to visit the Centre**, throughout the world, via electronic, digital, satellite and other information and communication tools.

Workshops on ICT

Open Source for Science

Digital Lectures

iRooms

eJDS

PingER

Open Access (African Physical Review, e-Print Archive)

Digital Lectures

- Two years ago, we started to think on how to create a web archive of video recordings of seminars delivered at ICTP by renowned guests.

Tsunami Physics and Preparedness
March 24, 2005

Selected lectures from the special workshop organized by the ICTP SAND Group (Structure and Non-Linear Dynamics of the Earth) after the tragic Tsunami event of December 2004.

The Wobbly Wind
March 23, 2005

Scientific talk on physics of thermal convection, given by ICTP Director Prof. Katepalli R. Sreenivasan for the SISSA Colloquium Series.

ICTP Dirac Medal 2004
March 16, 2005

The 2004 Dirac Medal of the ICTP awarded to James D. Bjorken and Curtis G. Callan during an award ceremony hold at the Centre on Wednesday, March 16, 2005.

Three-fold way

Those three are complementary solutions!

live	*archive*	*archive*
video-conference or webcast	**support material (pdf, ppt)**	**A/V recording + slides**
Skype *IE + PPT*	*ICTP Agenda (database)*	*few* (post-processing) *EyA* (automatic)

Examples of DL

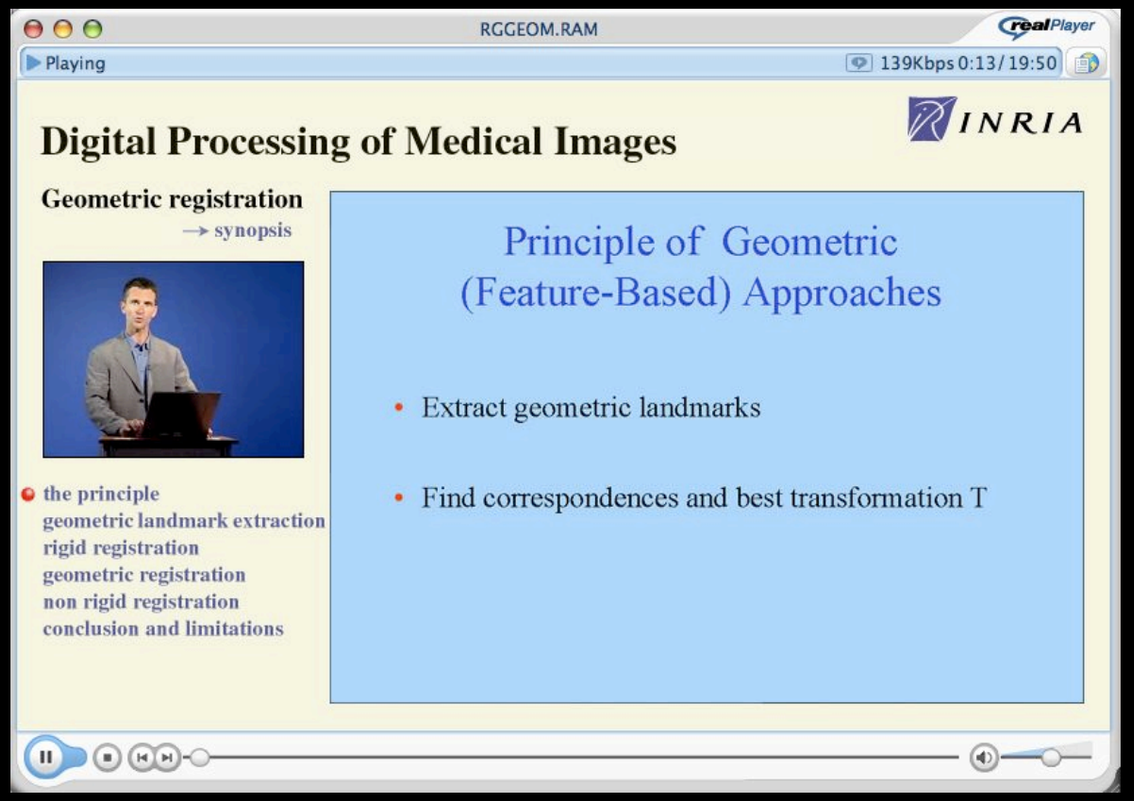
MIT:

- RealVideo
- Bandwidth Selection
- No Slides
- No download
- Post-processed

Examples of DL

INRIA:

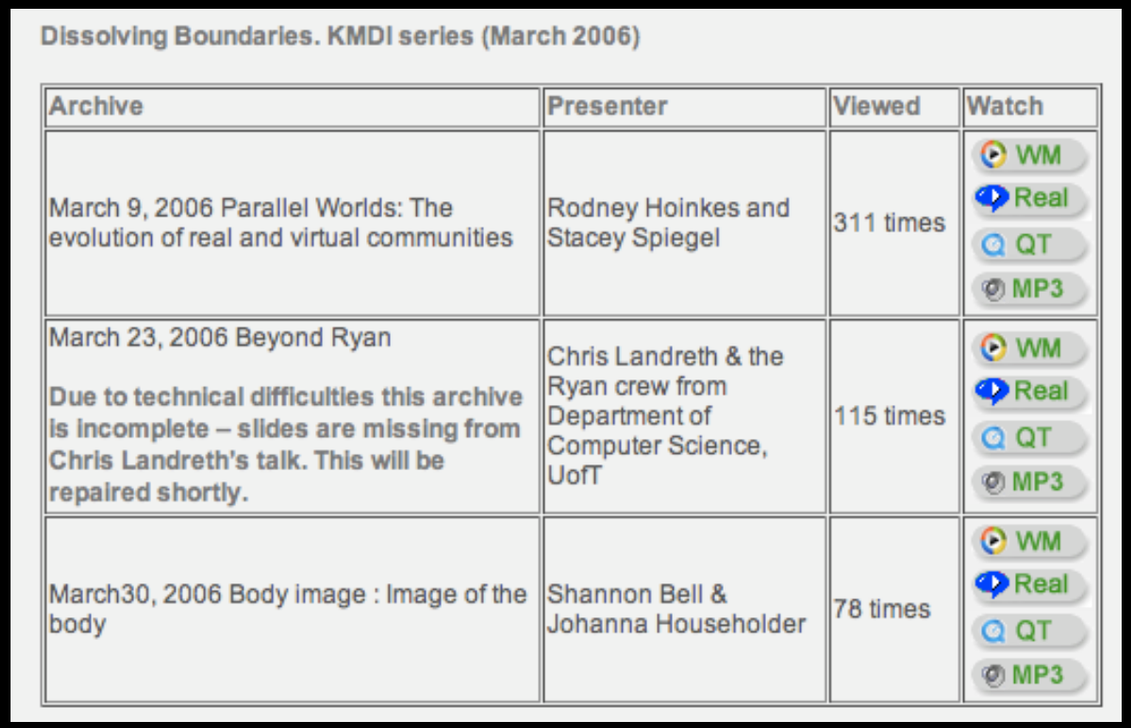
- RealVideo+XML-SMIL
- Synchronized Slides
- Post-processed



Examples of DL

ePresence:

- Multi Formats
- Audio only option
- Synchronized Slides
- Post-processed



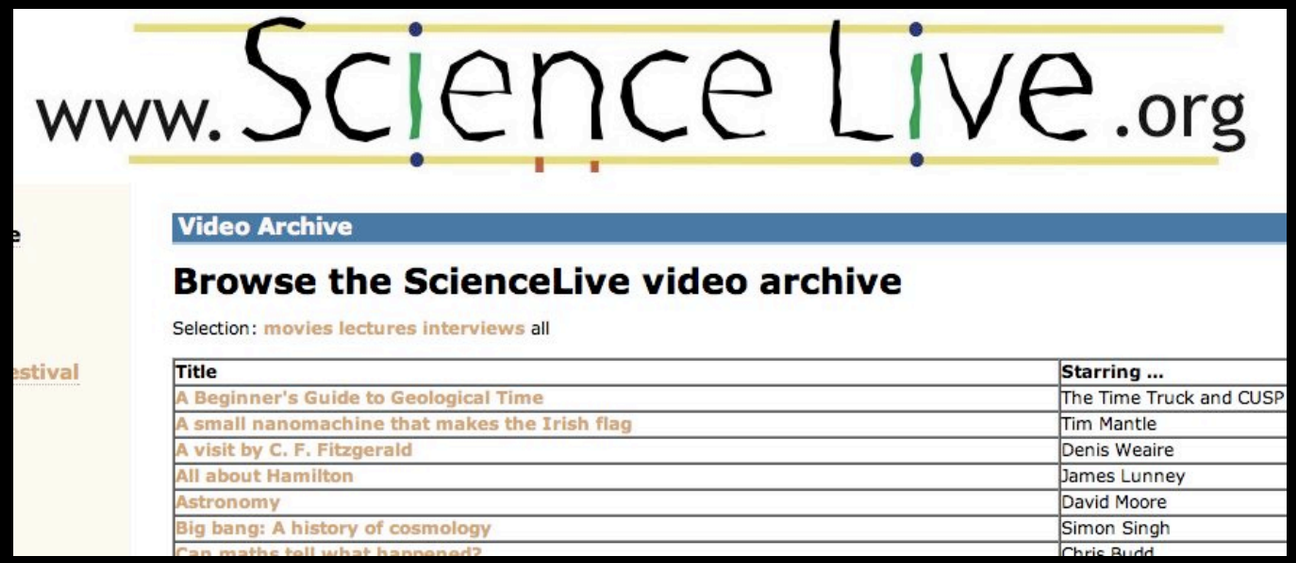
Dissolving Boundaries. KMDI series (March 2006)

Archive	Presenter	Viewed	Watch
March 9, 2006 Parallel Worlds: The evolution of real and virtual communities	Rodney Hoinkes and Stacey Spiegel	311 times	WM Real QT MP3
March 23, 2006 Beyond Ryan **Due to technical difficulties this archive is incomplete – slides are missing from Chris Landreth's talk. This will be repaired shortly.**	Chris Landreth & the Ryan crew from Department of Computer Science, UofT	115 times	WM Real QT MP3
March30, 2006 Body image : Image of the body	Shannon Bell & Johanna Householder	78 times	WM Real QT MP3

Examples of DL

Cambridge:

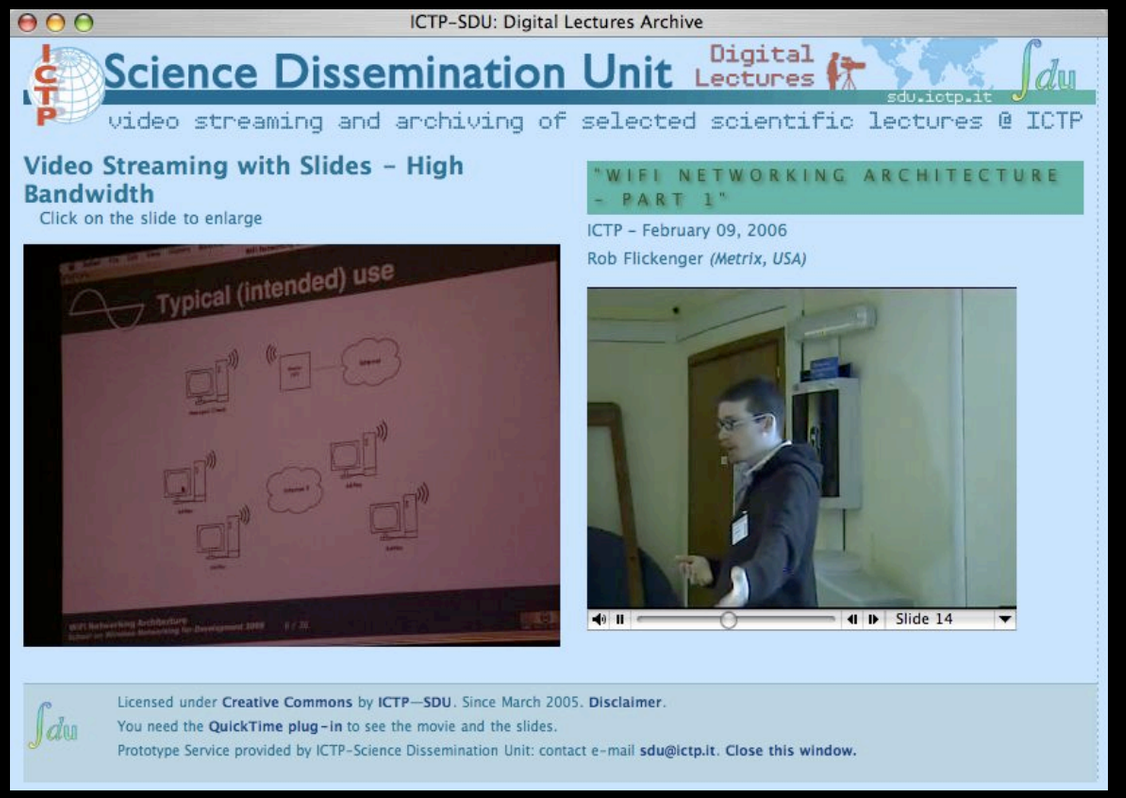
- Quicktime
- No Slides
- Post-processed



Examples of DL

ICTP-SDU (first version):

- Quicktime
- Audio only option
- Synchronized Slides
- Minimal post-processing
- Downloadable



THE problem

- "Our research so far has shown that making streaming video presentations accessible - increases staff time by an additional factor of up to fifty.

  The cost of outsourcing this service at 100% content accuracy is about $250 to $350 per hour of video."

  [http://www.utexas.edu/computer/grants/di4/cit/cit.html]

- "...that the key problem of recording is that it is necessary to have one person in the room to follow the lecture/recording equipment or even 3 or more persons depending on the number of lectures going on simultaneously." [ICTP referee report for an SDU workshop]

Our approach

- To have a Digital Lectures system which has:
  - ✓ high-quality
  - ✓ no human intervention
  - ✓ non invasive approach
  - ✓ low cost of equipment

plus few additional requests:

- ✓ continuous service with minimal maintenance
- ✓ low-bandwidth friendly features (zip, CD/DVD)
- ✓ compatible with all web browsers and Operating Systems

Boundary conditions

- Scientific lectures given mostly by physicists (from blackboard to PowerPoint slides)
- Different types of room are used for lecturing, staff for recording/assistance is not always available:
  - *from the Main Lecture Hall (huge, with some assistence) to small unattended rooms (here)*

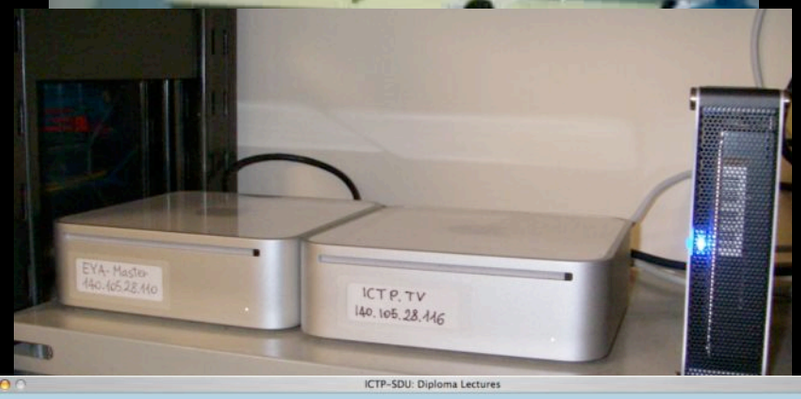
one innovative solution

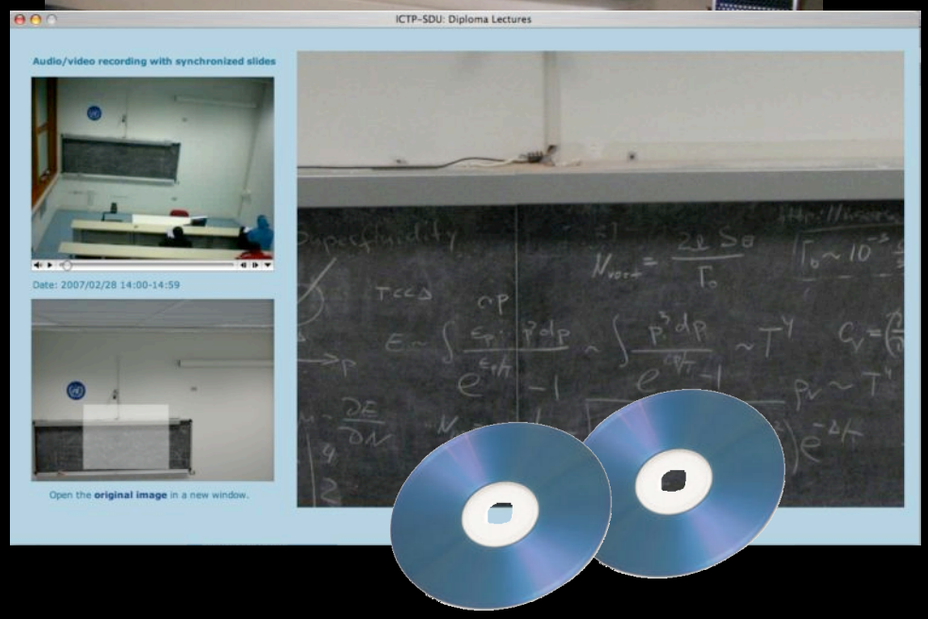
Enhance your Audience (EyA)

- during the talk:
  - audio/video recording
  - it also takes photos of the “wall”

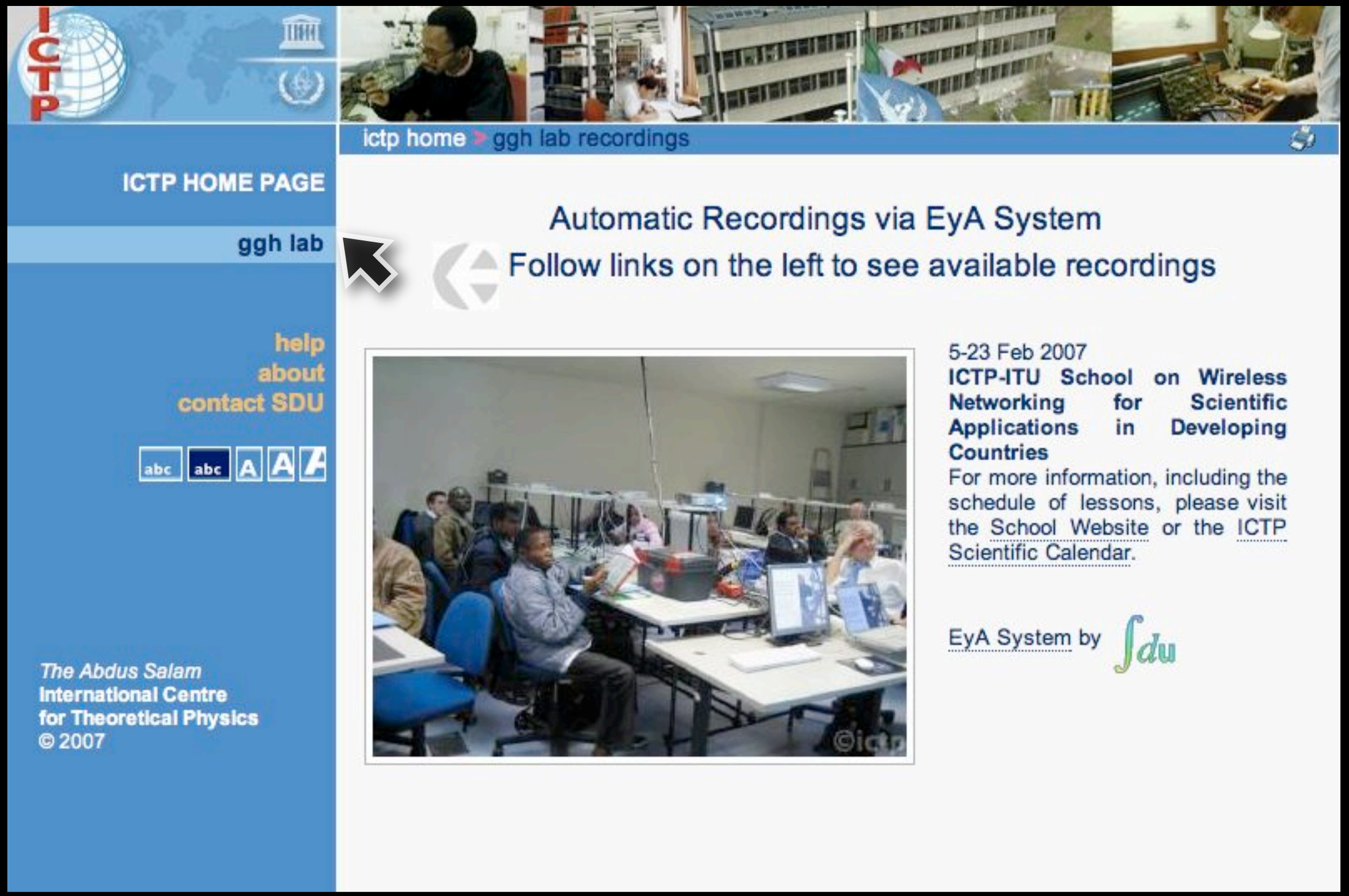
  ☞ no human intervention here!
- file transfer to server for processing
- immediately after the talk:
  - synchronization of photos (slides, blackboard, ...) with the video
  - making of a web page (+ zip file)
  - making of CD/DVD

  ☞ no human intervention here too!

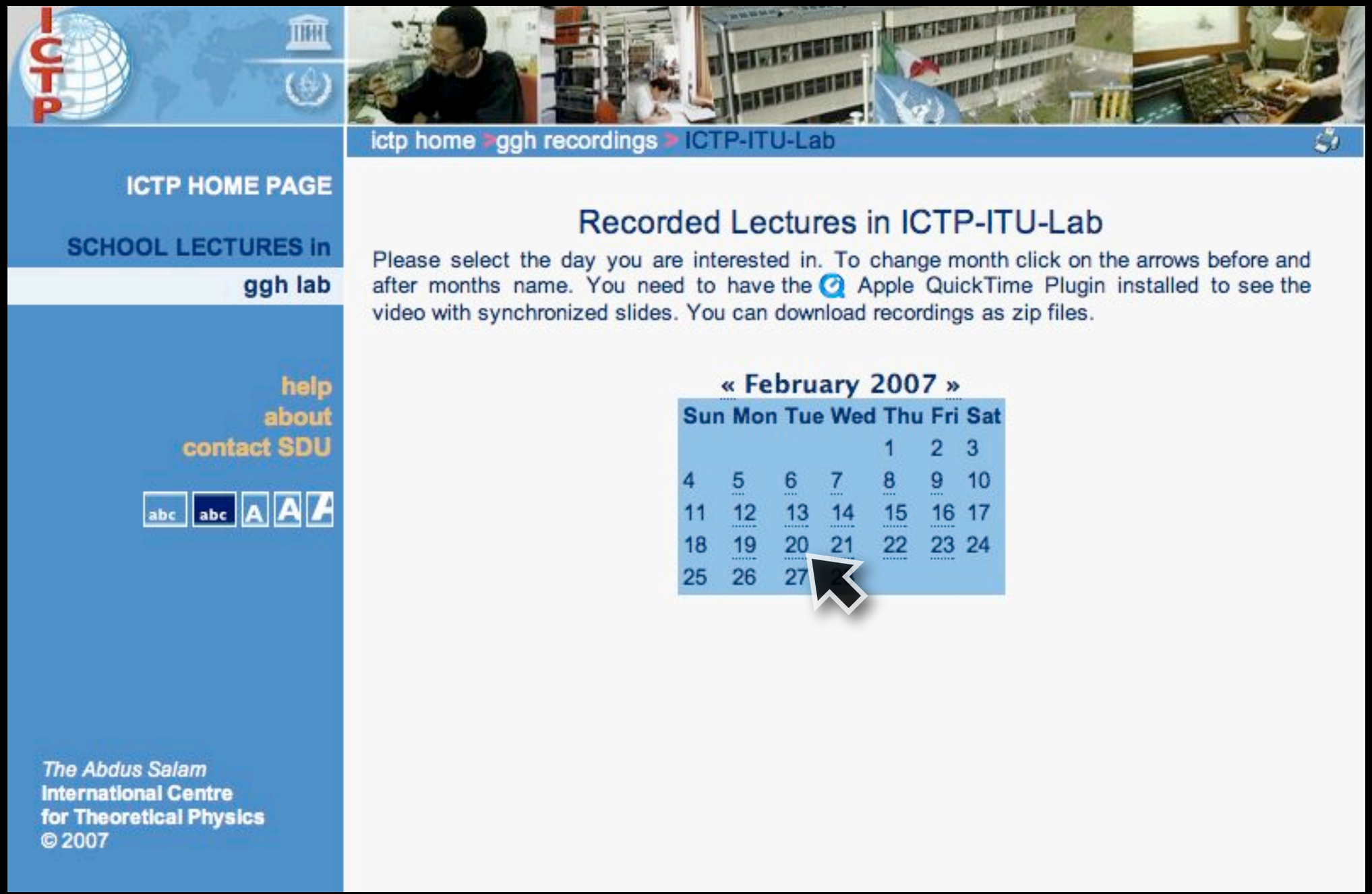




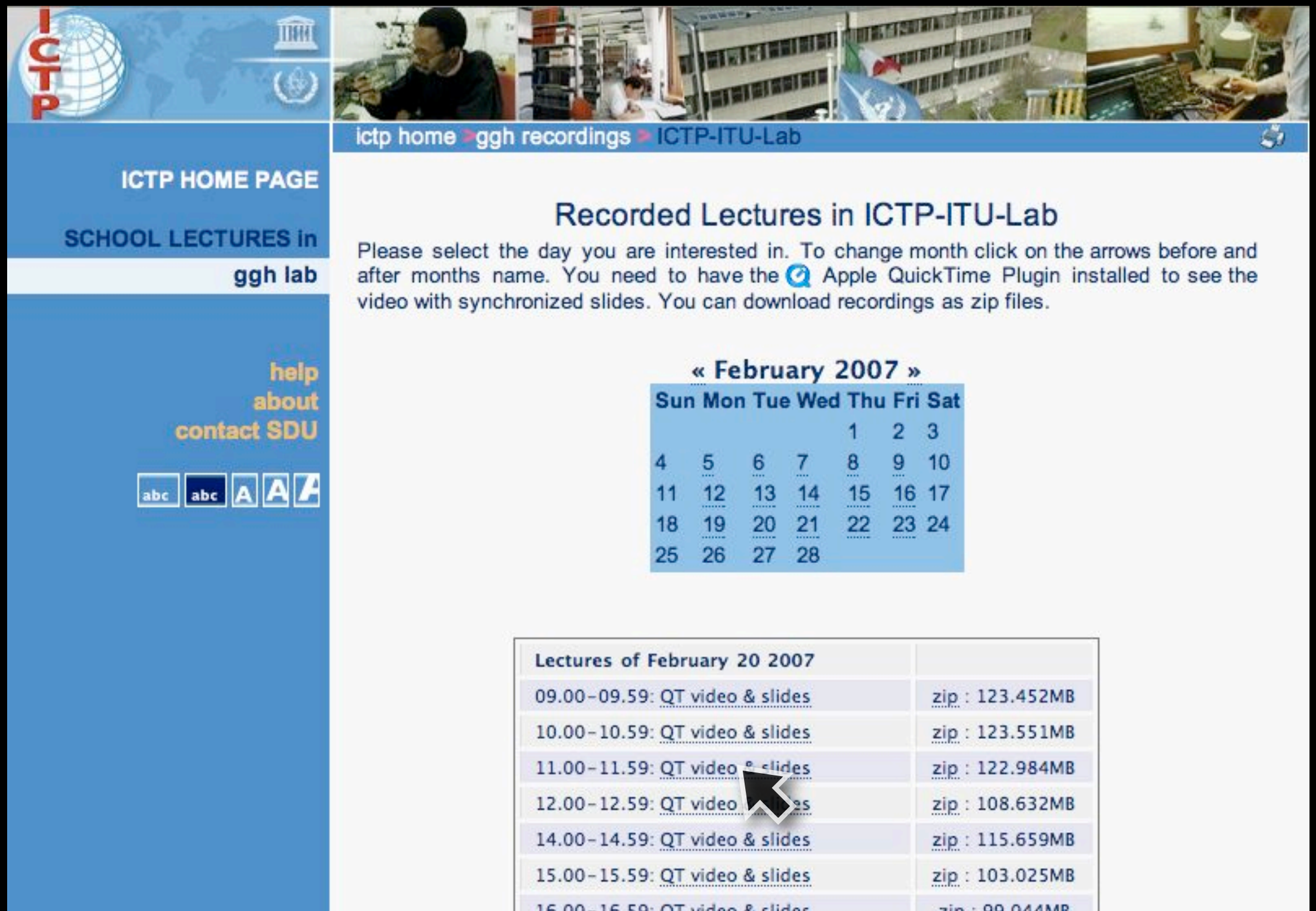
Screen layout - 1



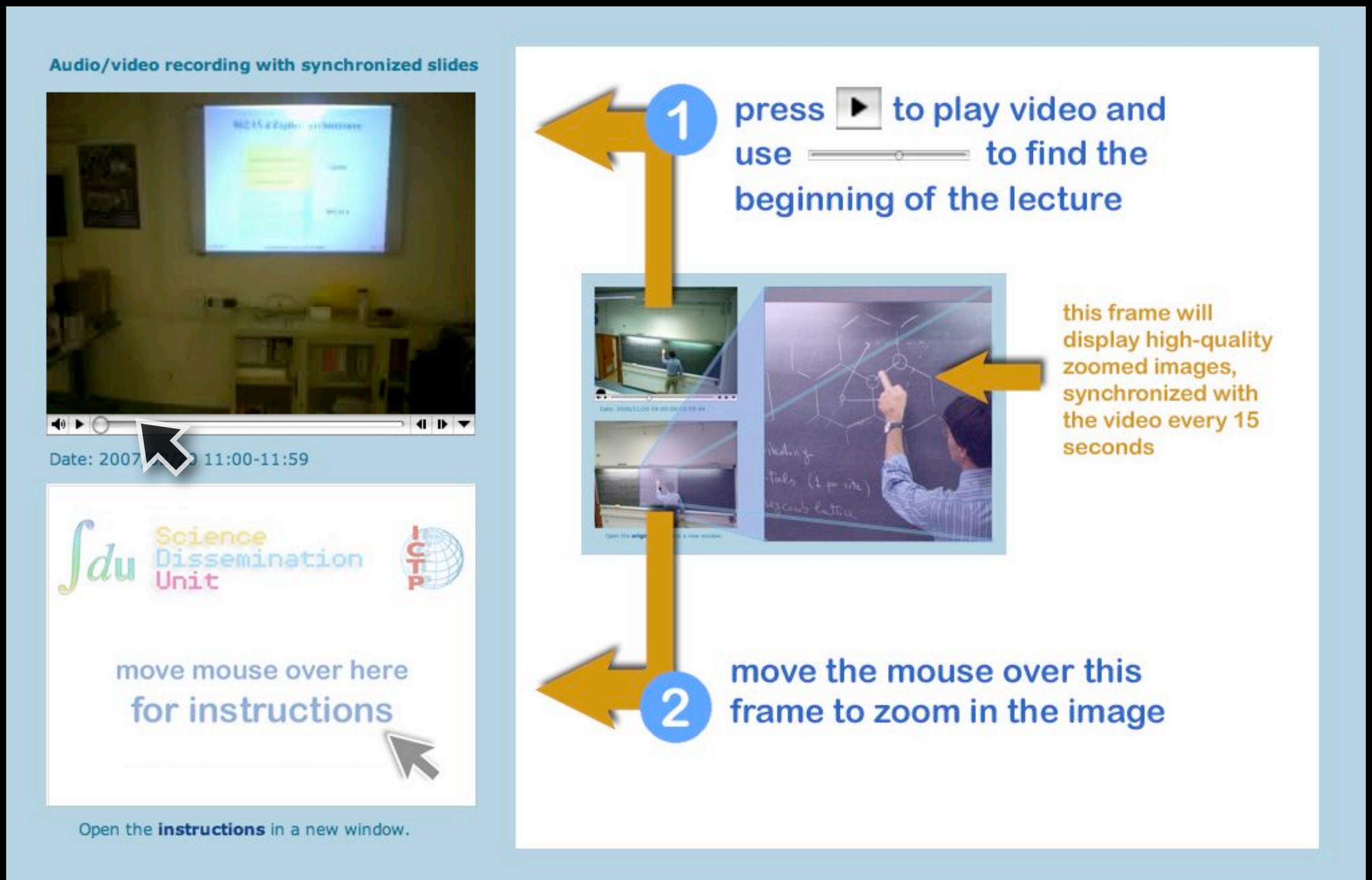
Screen layout - 2



Screen layout - 3



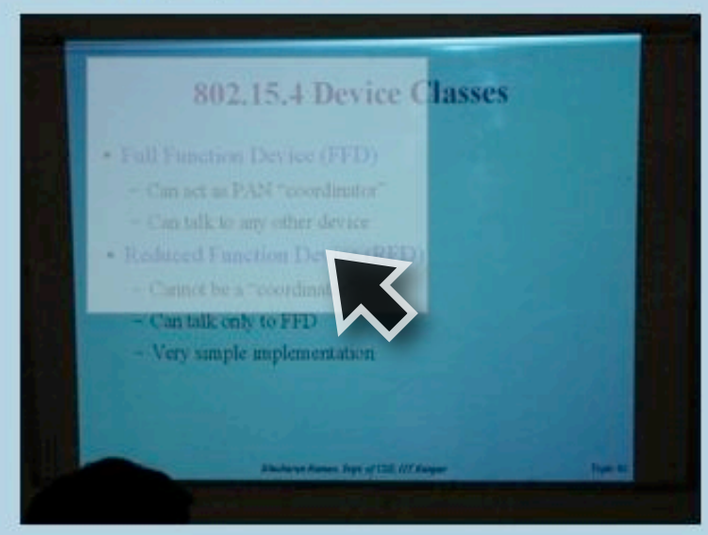
Screen layout - 4



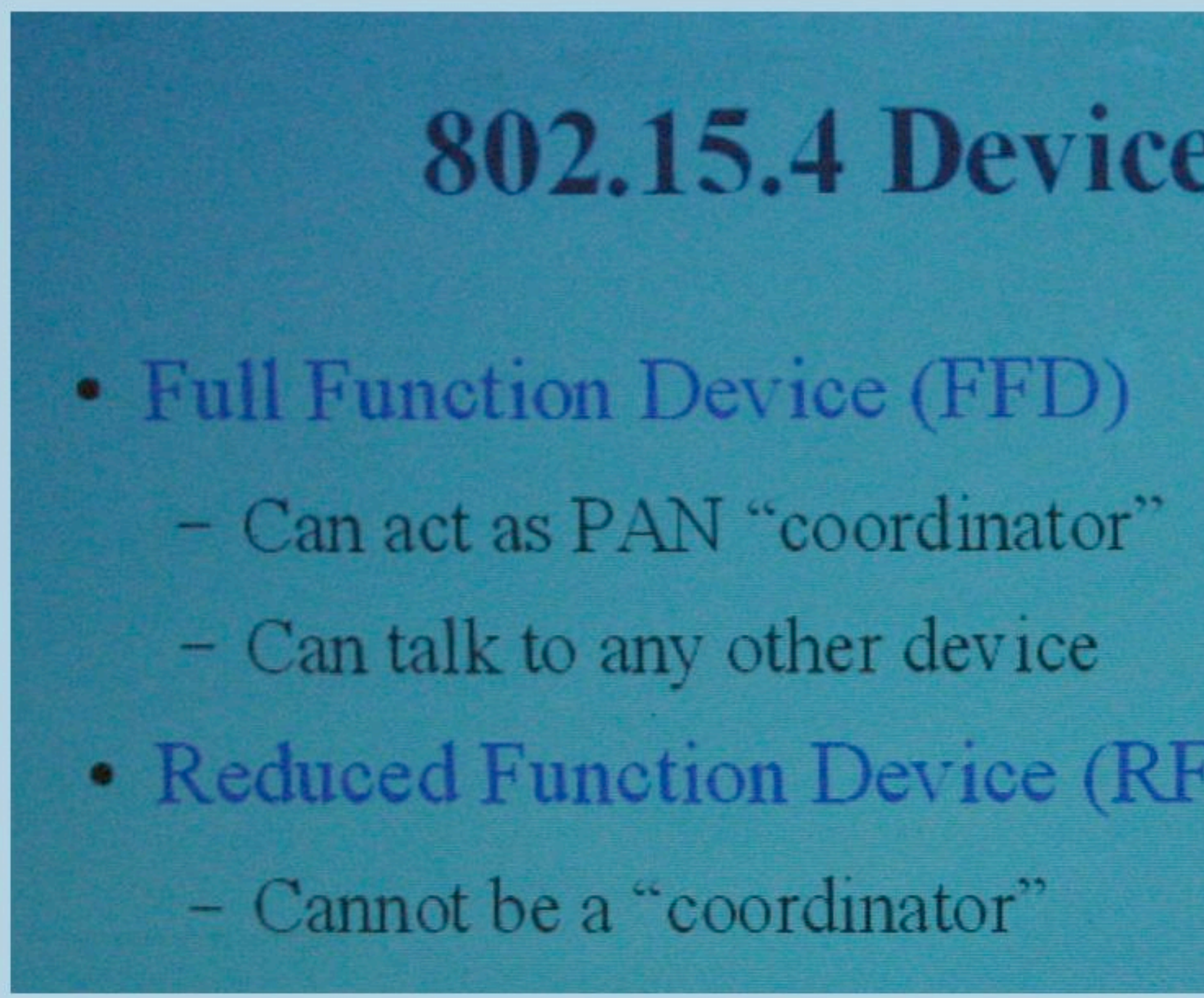
Screen layout - 5

Audio/video recording with synchronized slides

Date: 2007/02/20 11:00-11:59



Open the **original image** in a new window.



“Near Real-Time”

“Near Real-Time”

REC on

“Near Real-Time”

REC off

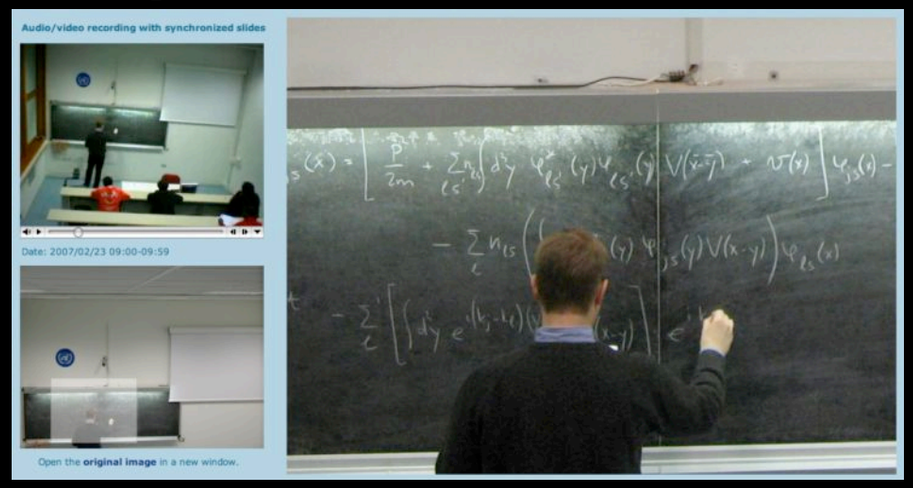
“Near Real-Time”

copy all files

server

“Near Real-Time”

http://www....



published on the web

post-processing

The way ahead

- future enhancements (technology-related):
  - touch-screen toaster
  - remote conference
  - tagging, data mining
- institutional policies (decisions to be taken):
  - wide adoption
  - www.ictp.tv
  - administration
  - intellectual property

Discussion: costs

- low cost for system development (done)
- low cost for installation
  ~ 1000 €/room
  1 – 5000 € for servers
- no cost for maintenance and management *(maybe digital camera replacement)*

Discussion: technology

- other video codecs
  ➡ **flash** version is under development
- smaller file size
  ➡ an image comparison technique is also under development
- system control interface
  ➡ a web interface will be available soon

www.ictp.tv

(EyA)